

HW for 3.3

Questions: 48, 20, 32

(48)

$$R = M^2 \left(\frac{C}{2} - \frac{M}{3} \right)$$

$$R = \frac{M^2 C}{2} - \frac{M^3}{3}$$

$$\begin{aligned} \frac{dR}{dM} &= \frac{2MC}{2} - \frac{3M^2}{3} \\ &= MC - M^2 \end{aligned}$$

$$\frac{C}{2} \cdot M^2$$

$$2x^2$$

$$2 \cdot 2x$$

(20)

prod. \rightarrow

$$y = (1-x) (1+x^2)^{-1}$$

$$\frac{1}{(1+x^2)}$$

quot. \rightarrow

$$y = \frac{(1-x)}{(1+x^2)}$$

(32)

$$y = 2\sqrt{x} - \frac{1}{\sqrt{x}}$$

$$= 2(x)^{1/2} - \frac{1}{x^{1/2}}$$

$$= 2(x)^{1/2} - x^{-1/2}$$

$$\frac{dy}{dx} = \frac{2}{2}(x)^{-1/2} - \left(-\frac{1}{2}\right)x^{-3/2}$$

$$= \frac{1}{\sqrt{x}} + \frac{1}{2x^{3/2}}$$

3.4

- a) Find the rate of change of the Area of a circle w/ respect to its radius.

$$f'(a) = \lim_{h \rightarrow 0} \frac{f(a+h) - f(a)}{h}$$

- b) Evaluate the rate of change of A at $r=5$ and $r=10$

$$A = \pi r^2$$

$$\frac{dA}{dr} = 2\pi r$$

$$\rightarrow 10\pi$$

$$\rightarrow 20\pi$$

Sect 3.4:

1, 3-5, 7-9, 12-14, 15, 18, 20, 23, 25, 26, 34-36, 38.